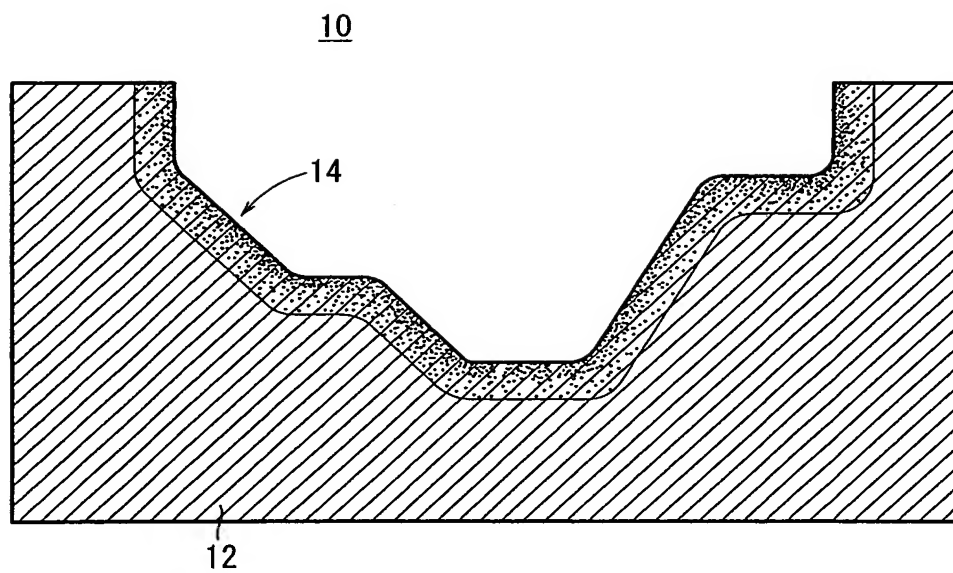


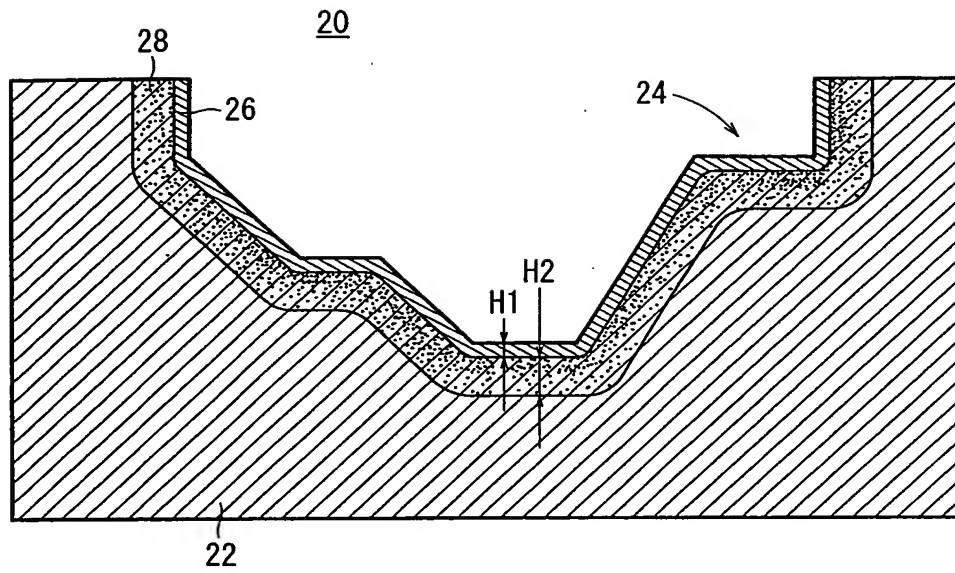
1/15

FIG. 1



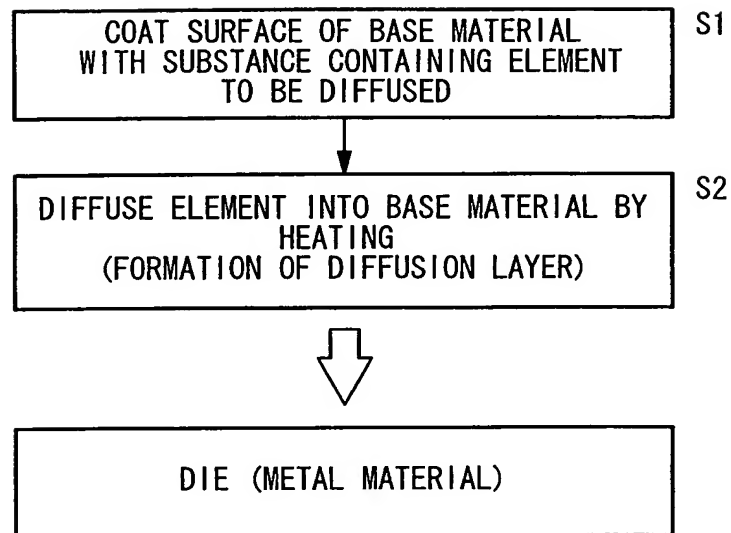
2/15

FIG. 2



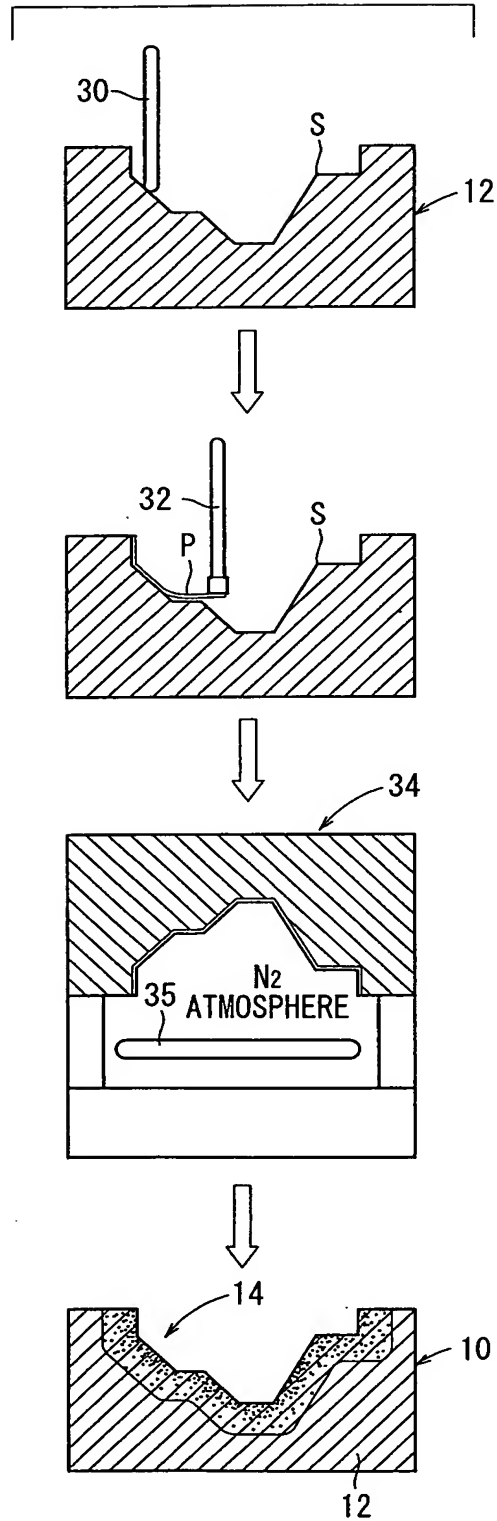
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FIG. 3



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FIG. 4



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FIG. 5

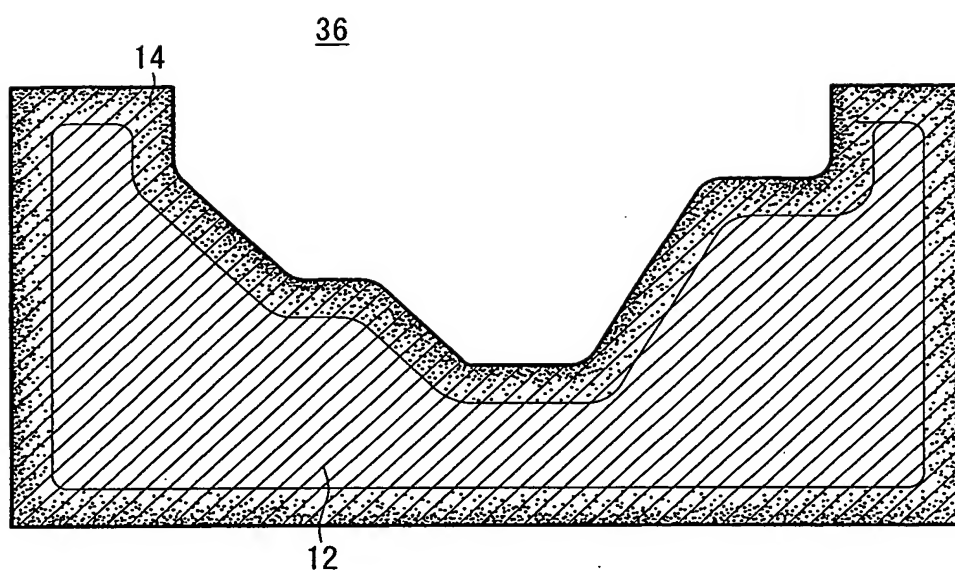
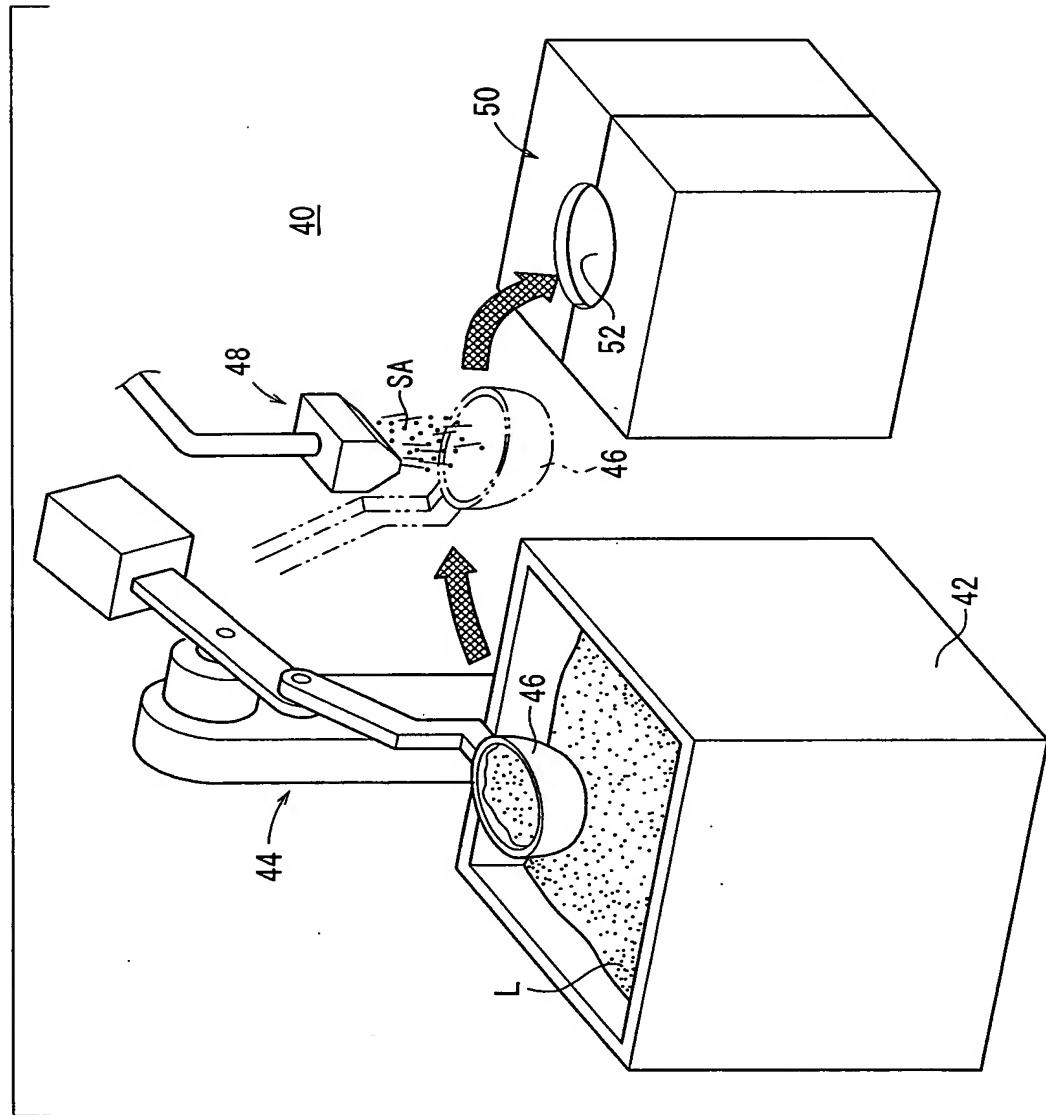
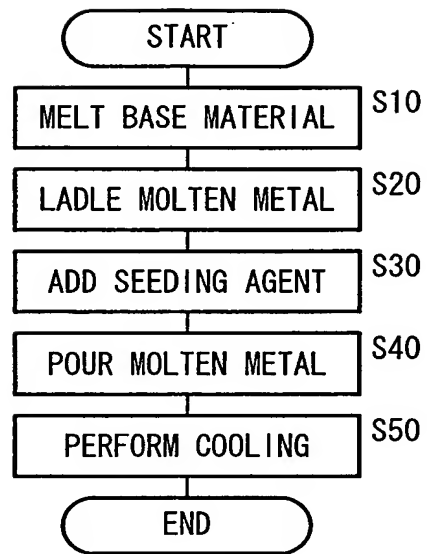


FIG. 6



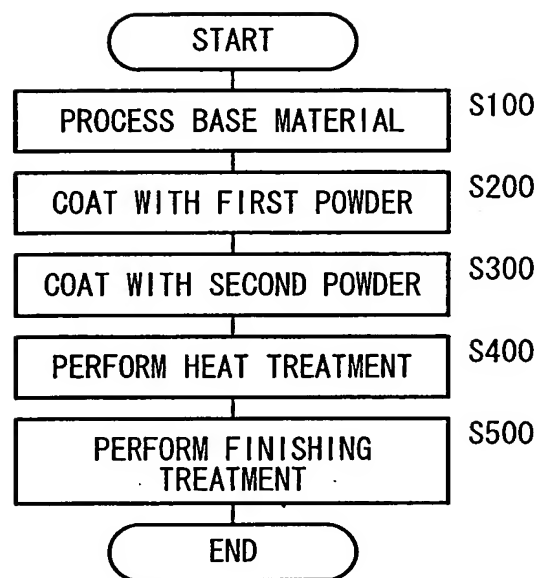
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FIG. 7



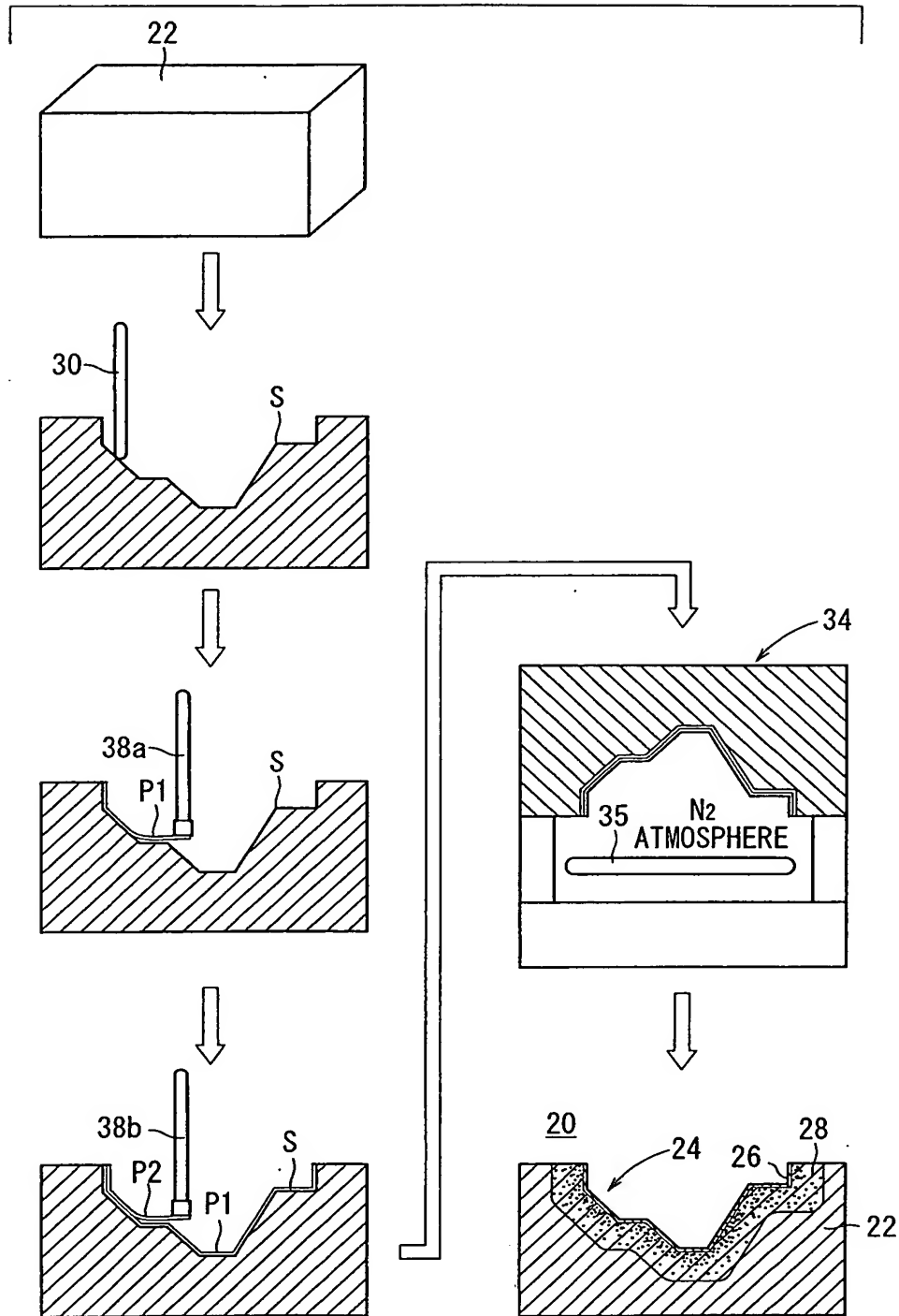
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FIG. 8



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FIG. 9



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FIG. 10

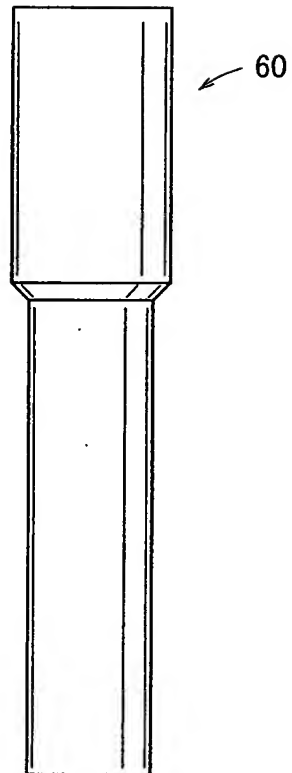


FIG. 11

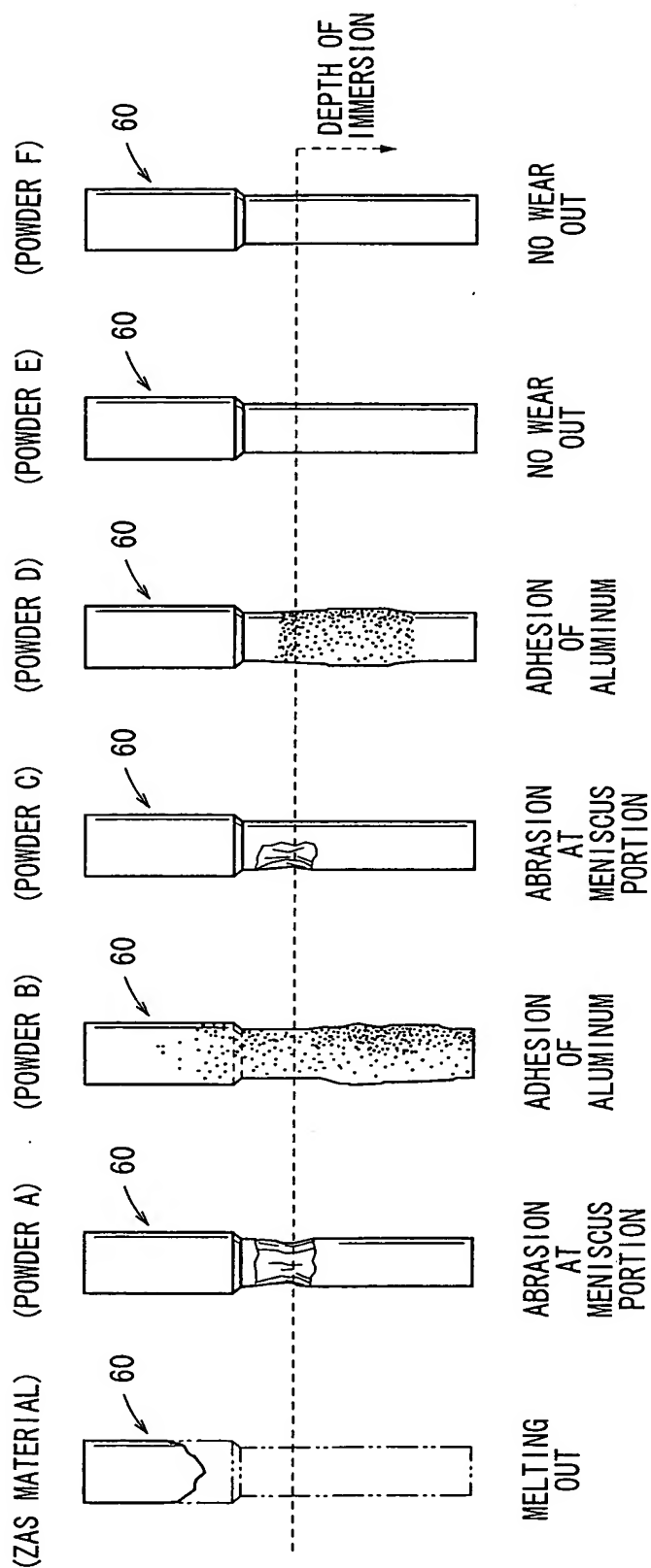


FIG. 12

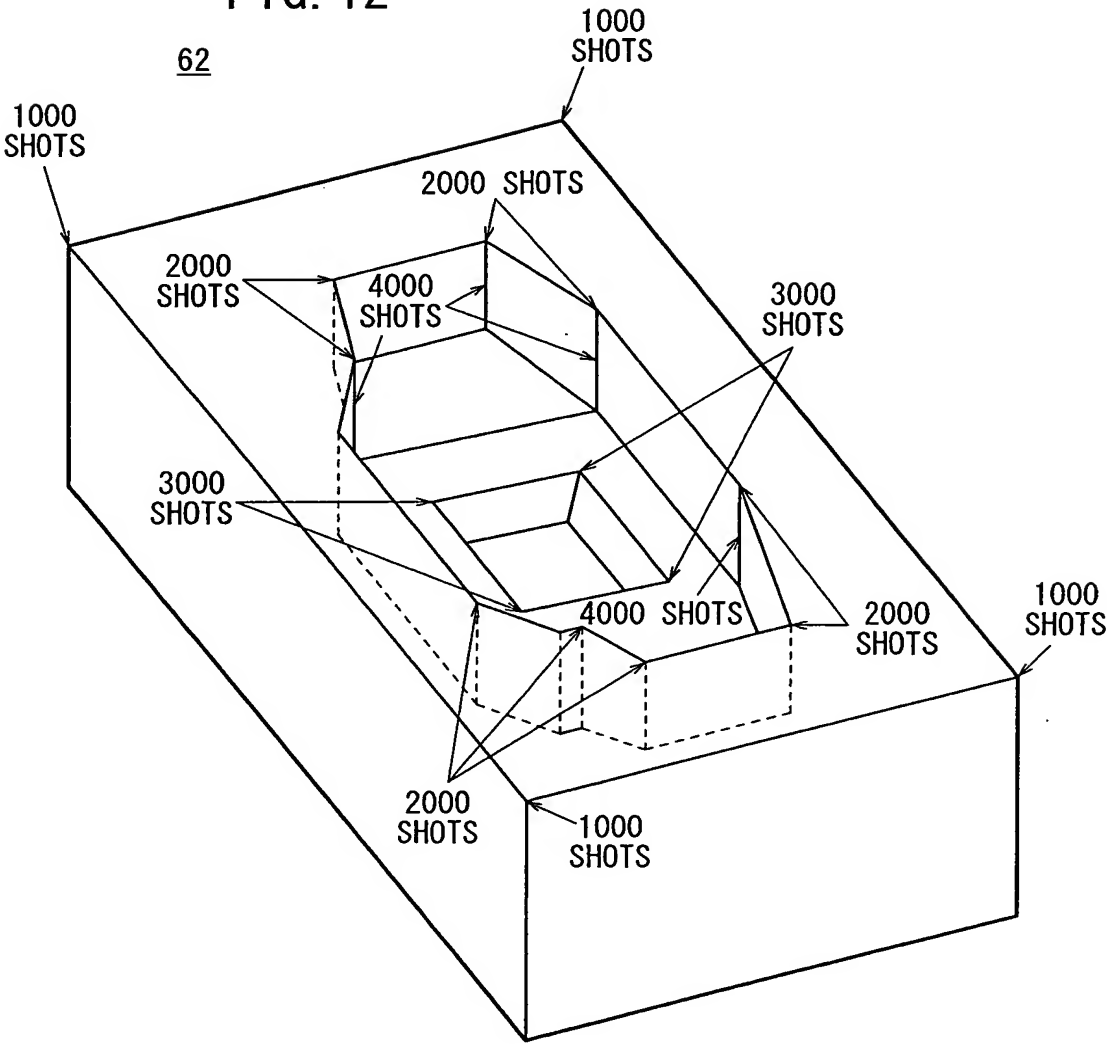
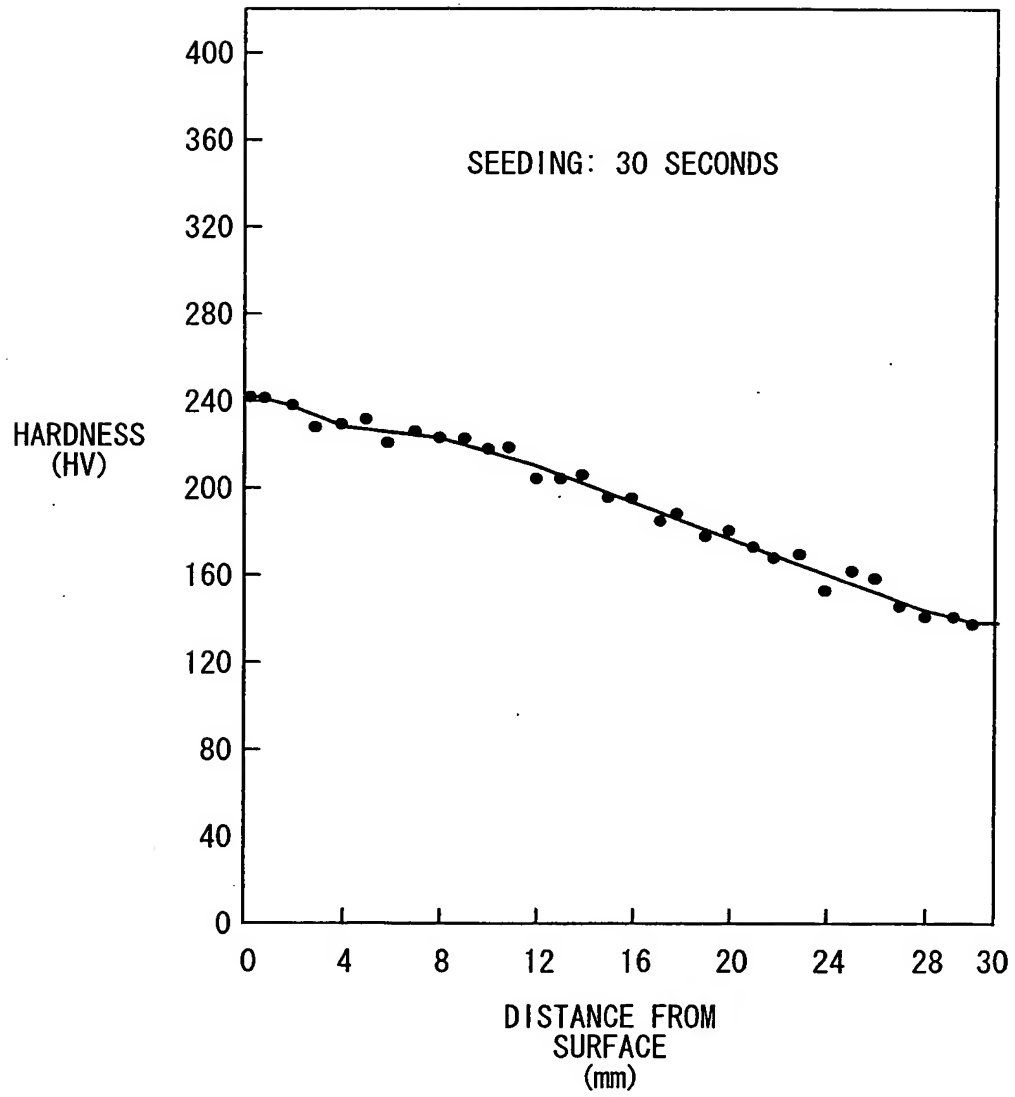


FIG. 13

	SEEDING TIMING (SECOND)				
	1	5	10	30	60
THICKNESS OF MICROSTRUCTURAL CHANGE (mm)	1~3	2~3	5~7	4~10	10~20
CRYSTAL GRAIN SIZE (μ m)	40~100	30~50	10~30	20~40	60~80
HARDNESS (HV)	120~135	150~180	230~240	220~240	140~160

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FIG. 14



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FIG. 15

